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ECONOMIC DEVELOPMENT DEPARTMENT

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Special Report on the Steel Industry in Hamilton-Wentworth

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1

Historical Perspective

HAMILTON-WENTWORTH STEEL INDUSTRY

1. HISTORICAL PERSPECTIVE

The history of steel making in Hamilton-Wentworth dates back to 1895 where the Hamilton Blast Furnace Company commenced the production of pig iron in a small blast furnace in Hamilton, Ontario.

Stelco Inc., the largest steel firm in Canada, came into being in 1910 when five steel companies, the Hamilton Steel and Iron Company, the Canada Screw Company, the Canada Nut and Bolt Company, the Montreal Rolling Mills Company and the Dominion Wire Manufacturing Company, joined forces and became known as The Steel Company of Canada, Limited.

Dofasco Inc., the other major steel producer in Hamilton, had its beginnings at a small steel foundry founded in 1912. The new company had an 80-ton daily capacity and employed about 150 people. It supplied many of the steel castings required by locomotive and freight car builders. Dofasco was the first Canadian source for steel plate, floor plate, tin plate, continuously-galvanized steel and electrical steels.

Since 1910, Stelco has grown into Canada's leading integrated steel manufacturer. This has been largely the result of a continuing programme of plant modernization and expansion, coupled with product and raw material development which, during the past 20 years, has involved expenditures of more than $2 billion.

Some of the major elements in Stelco history were:

- The bringing into operation in 1961 of a 500-ton open hearth furnace;
- The installation in 1965 of a 148" plate mill which enabled Stelco to produce plate and skelp for the fabrication of pipe up to 42" in diameter;
- In 1972, Stelco brought into operation a three-furnace Basic Oxygen Steel-making Shop at Hilton Works, which raised the company's raw steel capacity from 4.75 million tons to 6 million tons;

- The Lake Erie Works commenced operation in June, 1980. The first phase of the project comprises a 4,000-foot long dock for the reception of raw materials, a coke-making facility with 45 ovens, a blast furnace, a two-vessel Basic Oxygen Furnace Steelmaking Shop and a continuous slab-casting machine. An 80-inch hot strip mill is scheduled to be completed in 1983. The additional production capacity is 1.3 million tons of raw steel per year;

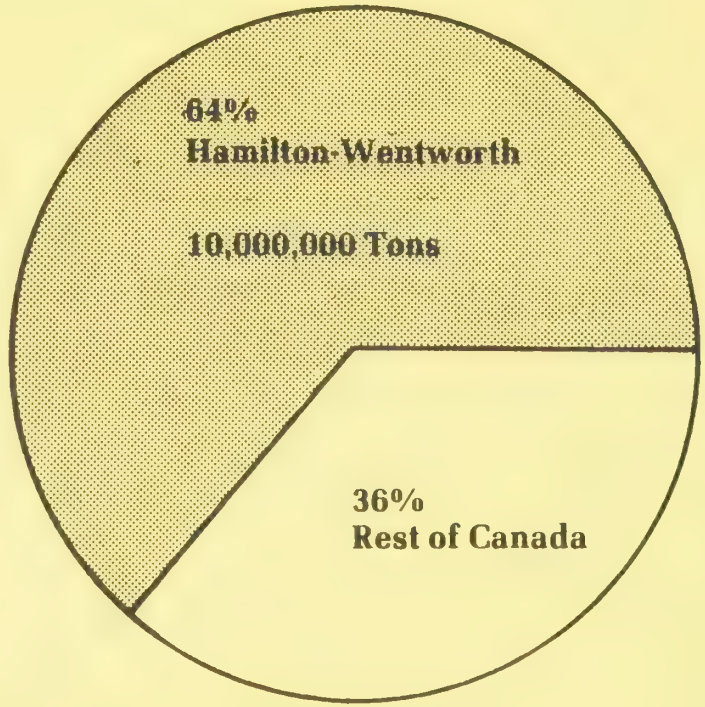
Dofasco emerged as a strong force on the Canadian Steel Industry in the early 1950's. At that time, Dofasco joined the ranks of Canada's fully integrated steel producers with the installation of a blast furnace and coke ovens.

In 1954, Dofasco introduced the then-revolutionary Oxygen Steelmaking process. The introduction of oxygen steelmaking helped increase annual production capacity. In 1978, Dofasco completed its No. 2 Basic Oxygen Steelmaking Plant. The plant has an initial annual capacity of 1.1 million ingot tons and incorporates some of the most modern steelmaking equipment found anywhere in the world.

The Steel Industry Today

Integrated Iron & Steel Firms Output

Hamilton vs. Rest of Canada 1978



2. THE STEEL INDUSTRY TODAY

Since their humble beginning at the turn of the 20th Century, both Stelco and Dofasco have grown to be the two largest steel firms in Canada.

2.1 Major Firms in the Canadian Steel Industry

Firms in the Canadian Steel Industry fall into two main groups:

a) The integrated iron and steel producers (Algoma, Dofasco, Sidbec-Dosco, Stelco, Sysco) who have ironmaking, steelmaking and steel rolling facilities; and,

b) The integrated steel producers (Atlas, Burlington, Interprovincial, Ivaco, Lasco, Manitoba, Western Canada) who have steelmaking and steel rolling facilities.

TABLE 1 - Canadian Steel Producers; Main Location; Sales; Crude Steel Output and Work Force, 1978

INTEGRATED IRON AND STEEL PRODUCERS

Name of Firm	Location of Main Plants	Sales $ Million	Steel Output M Short Tons	Work* Force
The Algoma Steel Corporation Limited	Sault Ste. Marie, Ontario.	884	3.3	10,500
Dofasco Inc.	Hamilton, Ontario.	1,120	3.5	12,300
Sidbec-Dosco Limited	Contrecoeur, Quebec	250	1.0	4,000+

Name of Firm	Location of Main Plants	Sales $ Million	Steel Output M Short Tons	Work* Force
Stelco (The Steel Company of Canada)	Hamilton, Ontario.	1,780	5.5	23,700
Sysco (Sydney Steel Corporation)	Sydney, Nova Scotia.	117	0.7	3,100
Atlas Steels, A Division of Rio Algoms Limited	Welland, Ontario.	335	0.2	3,400
Burlington Steel and Slater Products	Hamilton, Ontario.	96	0.3	1,100
Ipsco (Interprovincial Steel and Pipe Corp. Ltd.)	Regina, Saskatchewan.	174	0.45	1,960
Ivaco Ltd.	l'Orignal, Ontario.	266	0.30	4,000
Lasco (Lake Ontario Steel Company Limited)	Whitby, Ontario.	N/A	0.45	800
Manitoba Rolling Mills (Canada) Limited	Selkirk, Manitoba.	N/A	0.22	550
Western Canada Steel Limited	Vancouver, B. C.	50+	0.20	N/A

* Stelco and Dofasco account for 64% of the integrated iron and steel producers output (1978).

Stelco, Dofasco and Burlington Steel account for 58% of all crude steel output (1978).

2.2 Hamilton Steel Firms Product Line

Hamilton steel firms produce the majority of steel products which comprise a full steel product line. Excepted are stainless steel, tool steel, rails and heavy structurals.

TABLE 2 - Rolled Steel Products by Hamilton Firms

	Stelco	Dofasco	Burlington Steel
Ingots	X		X
Billets, blooms and slabs	X	X	X
Hot rolled sheet and strip	X	X	
Cold rolled sheet and strip	X	X	
Galvanized sheet	X	X	
Tinplate	X	X	
Plate	X	X	
Merchant Bars	X		X
Special quality and alloy bars	X		X
Concrete reinforcing bars	X		X
Light structurals	X		X
Wire rods	X		X

The Table does not cover non-rolled products such as castings and forgings, further processed products such as pipe and tube, wire and wire products, grinding balls.

2.3 Hamilton Steel Firms Detailed Product Line

The following is a more detailed list of steel products manufactured by the local steel firms:

Stelco:

1. Bar Products - Hot Rolled Steel Bars (HR Bars)
2. Bar Products - Cold Finished Steel Bars (CF Bars)
3. Bolt Products
4. Chemical Products
5. Fence Products
6. Forgings - Closed Die
7. Grinding Media
8. Merchant Wire
9. Nails
10. Oil Country Products
11. Pipe and Tube Products
12. Plate
13. Pole Line Hardware
14. Putty
15. Reinforcing Products
16. Residential Products
17. Rod and Wire Products
18. Screw Products
19. Hot Rolled Semi-Finished Steel (Forging Quality - FQ)
20. Sheet
21. Special Products
22. Tin Mill Products
23. Track Materials
24. Wharf Materials

Dofasco:

1. Tin Mill Products - a) Electrolytic Tin Plate Sheets and Coils
   b) Electrolytic Chromium Coated (TFS-CT) Sheets and Coils
   c) Tin Mill Black Plate

2. Hot-Rolled Products -	a)	Skelp-Hot Rolled
	b)	Hot-Rolled Checker (Floor) Plate
	c)	Hot-Rolled Steel Plate
	d)	Hot-Rolled Sheets and Coils
3. Cold-Rolled Products -	a)	Cold-Rolled Sheets and Coils
	b)	Cold-Rolled Strip
	c)	Electrical (Silicon) Steels
	d)	Porcelain Enamelling Steels
4. Galvanized Products -	a)	Continuous Galvanized Sheets and Coils
	b)	Premier - Satincoat - Culvery Stock
5. Prepainted Steels -	a)	"Pre-Coat"
	b)	Cold-Rolled - Galvanized - Tin Plate
6. Steel Castings -	a)	Carbon
	b)	Alloy

Burlington Steel (A Division of Slater Steel Industries Limited):

1. Carbon Steels
2. Alloy Steels
3. Merchant Bars
4. Flats
5. Rounds
6. Special Sections
7. Concrete Reinforcing Bars
8. Forced Steel Grinding Balls

2.4 Indices of Business Activity

The three iron and steel producers in the area have increased their output in recent years. In the last five years, Stelco output increased by 11.3%, Dofasco by 27.8% and Slater Steel acquired Joslyn Stainless Steel, a division of Joslyn Manufacturing and Supply Company of Chicago. U.S.A.

TABLE 3

SELECTED BUSINESS INDICATORS - HAMILTON STEEL FIRMS
1977 - 1981

	1981[1]	1980	1979	1978	1977
1. Raw steel produced*					
Stelco	4,454	6,278	5,862	5,533	5,640
Dofasco	4,258	3,681	4,060	3,588	3,333
Slater Steel	281	285	N/A	N/A	N/A
2. Steel shipments*					
Stelco	3,804	4,529	4,553	4,466	3,995
Dofasco	3,223	2,914	3,099	2,830	2,596
Slater Steel	217	247	N/A	N/A	N/A
3. Sales[2]					
Stelco	2,173.8	2,228.6	2,091.2	1,775.7	1,444.1
Dofasco	1,767.5	1,541.9	1,435.1	1,120.4	919.0
Slater Steel	113.7	105.3	95.6	64.5	55.7
4. Net Income[2]					
Stelco	82.8	132.2	156.9	111.9	81.9
Dofasco	169.3	122.2	136.9	94.9	68.5
Slater Steel	7.0	9.6	11.1	3.7	2.0
5. Return on Average Common Shareholders' Equity[3]					
Stelco	3.4	9.7	14.7	11.3	8.8
Dofasco	18.5	15.2	20.2	15.8	12.9
Slater Steel	10.4	15.5	20.3	7.7	3.9
6. Dividends Declared (Per Common Share)					
Stelco	$2.00	2.00	1.75	1.70	1.70
Dofasco	$2.50	2.42	2.10	1.66	1.55
Slater Steel	.80	.95	.70	.32	.68

	1981[1]	1980	1979	1978	1977
7. Capital Expenditures[2]					
Stelco	210.2	191.7	204.0	145.3	144.6
Dofasco	238.3	176.8	61.3	128.2	152.2
Slater Steel	4.3	3.4	1.6	.9	1.7
8. Average Number of Employees					
Stelco	26,263	25,094	25,032	23,712	22,942
Dofasco	13,700	14,100	13,700	12,300	11,300
Slater Steel	1,527	1,121	1,126	1,041	1,103
9. Number of Common Shareholders					
Stelco	32,277	36,040	40,495	38,147	36,408
Dofasco	13,451	13,719	14,141	14,674	15,196
Slater Steel	3,778	4,237	4,850	5,818	5,838

* Thousands of Net Tons
(1) 1981 operations were interrupted by a 125-day strike at Stelco Hilton Works
(2) Millions of Dollars
(3) Percentage

3

Steel Markets

1981 Primary Steel Production in Hamilton;
15% Exported
85% Domestic
$4.055 Billion Sales

3. MARKETS, OUTPUT AND MARKET SHARE

Steel is one of the most important inputs required for the orderly function of an industrialized society. The technical qualities of steel plus its relatively low production costs have long contributed to its widespread use. Steel is very important for the manufacture of most capital goods and many durable consumer goods. Historically, fluctuations in the steel industry performance were closely linked to cycles of economic activity. However, since 1974, this link has been less pronounced. For many years, it seemed that the Canadian steel manufacturers were immune to the world-wide crisis in steel production. Since 1974, they have succeeded in stepping up production at an annual rate of 2.6%, while world production has stagnated. U.S. manufacturers cut back production at an annual rate of 4.5% and the European Economic Community shipments dropped by an average 3.2% annually. The main direct reasons for the good Canadian performance were the substitution of domestic products for imports and increased exports. Since 1974, annual shipments to Canadian customers have risen by an average of 0.2%, while imports have declined by 10.6%. Exports increased at an average rate of 19.9% mostly to the U.S.A.

The fundamental reasons behind the surprisingly good Canadian performance can be attributed to the following:

a) By paying constant attention to technological modernization and change and by modernizing and upgrading their production facilities, Canadian manufacturers were able to better compete with Japanese and Brazilian steel. One example of the modernization process is the utilization of oxygen furnaces. Fifty per cent of the Canadian production of raw steel in 1971 utilized the electric furnace and 34% utilized oxygen furnaces. In 1980, open hearth furnaces accounted for only 18.5%, electric furnaces for 22.5% and oxygen furnaces dominated the industry with 59% of production capacity.

b) Output policy which served to control production capacity growth so that output will correspond to the average demand. During the cycle peak periods, market share was left open for imports. This strategy served to maintain satisfactory utilization rates.

c) Canadian steel manufacturers have better control than their U. S. and European competitors over costs. The Canadian equipment is generally more modern, the iron ore sources are usually located nearer the steel mills and various energy forms were available at lower costs. These advantages were most pronounced when competing for U. S. market share.

d) In the domestic market, the industry benefits from tariffs on imports, the exchange rate and the discouraging effect of high transportation costs for imports.

3.1 The Domestic and Export Markets

Steel demand is heavily dependent on the economic cycle. In times of economic growth, increased personal income leads to increased consumer spending for durable goods. The expanding sales environment encourages demand for capital goods through increased capital expenditures by business. In Canada, demand for steel continued to be strong even in times of slow economic growth due to very large demand from the oil and other resource sectors. Thus, though demand from such traditional sources as the automotive and appliances sectors declined, the slack was taken by increased demand from the tube and pipe manufacturers. The change in demand favoured flat products and has influenced the product line and the thrust of new expansions toward the flat products. (Dofasco and additional steel capacity at Stelco Lake Erie Works) The following is an analysis of the Canadian market, imports and exports.

3.2 The Canadian Market, Imports and Exports

TABLE 4

SHIPMENTS: DOMESTIC, IMPORTS AND EXPORTS
OF STEEL IN CANADA (THOUSANDS OF METRIC TONS)

Year	Total Shipments (imports plus domestic)	Exports			Total Domestic Consumption	From Domestic Source	From Imports
		Domestic	U.S.A.	Other			
1971	8357.6	7259.8	882.2	275.6	9168.5	7259.8	1908.7
1974	10377.5	9459.9	552.7	364.9	12578.1	9459.9	3118.2
1978	11692.5	9863.8	1431.2	397.5	11537.3	9863.8	1673.5
1979	12229.7	10620.6	1298.8	310.3	12879.7	10620.6	2259.1
1980	12287.5	9556.6	1386.8	1344.1	11144.5	9556.6	1587.9
1981 (estimate)	11580.0	9700.0	1480.0	400.0	11600.0	9700.0	1900.0

Source: Statistics Canada and National Bank of Canada.

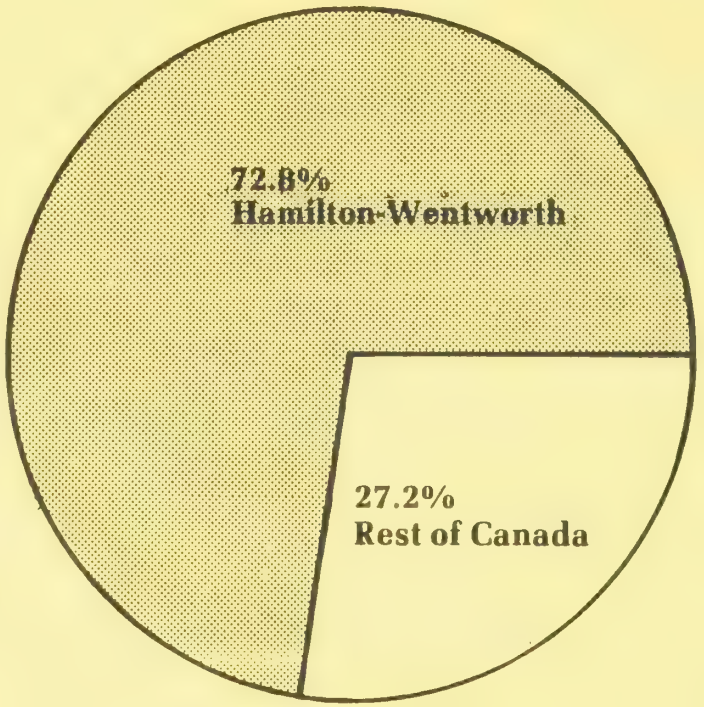
Since 1978, total domestic production began to exceed total local demand. The growing output has been channelled into the export markets and mainly the U.S.A. market. Exports to U.S.A. ran at 1.5 million tons in 1981 which represents 12.8% of the total domestic output.

4

Research and Development

Man/Years in Research and Development

Hamilton vs. Rest of Canada 1979



4. TECHNOLOGICAL COMPETENCE AND INNOVATION

The Canadian steel industry in general and the Hamilton steel firms in particular have been engaging in a continuous process of technological innovation and modernization of equipment and processes. Man years in research and development for the three Hamilton steel firms comprise 73% of the total for the industry in 1979.

TABLE 5

MAN YEARS IN RESEARCH AND DEVELOPMENT

	1975	1976	1977	1978	1979
Burlington Steel	2	3	4	5	5
Dofasco	84	77	81	87	90
Stelco	124	122	122	121	124
	210	202	207	213	219
Industry Total (Canada)	275	267	280	292	301
Hamilton % in Industry	76.3	75.7	73.9	71.2	72.8

Source: The Canadian Steel Industry Factbook

Out of the many innovations (see Appendix I), the following are the most recent ones:

Stelco

Newly-designed oxygen injection lances were developed and installed on the furnaces at the Hilton Works basic oxygen steelmaking shop. These high-velocity

lances, with a special nozzle/jet configuration, contribute to improved steel yield and maximize oxygen efficiency.

Revised steelmaking and rolling procedures have significantly reduced the yield loss attributable to surface problems on cold-rolled sheet steel.

A modified component design and new operating practice to improve the batch annealing of coiled strip has resulted in a significant improvement in annealing furnace throughout and the production of more uniform quality steel.

Modifications to the vinyl coating system used on Barrier Series industrial cladding, a prefinished sheet steel product with outstanding corrosion resistance to harsh environments, led to the development of "Ultragard", a premium quality coated product for the residential siding market.

The Corporation is participating in an investigation into a promising future technology for blast furnace operation which shows potential for shifting the primary energy base of the blast furnace from coal (coke) to electricity.

A prime consideration of Stelco engineers has been to assure design reliability. An example of Stelco's approach can be found in the vertical edging stand of the 80" Hot Strip Mill at Lake Erie Works. In this application, vertical electric motors will drive the vertical rolls, eliminating bevel gears and long shafts. The new design is inherently more reliable and less costly than the traditional design.

The Corporation continues to seek out cost-effective applications for micro-computer technology. At Stelco's Continuous Rod Processing Plant, microcomputers direct up to eleven radio-controlled cranes as they load, unload and transport coils of rod through the various steps in the processing sequence.

Stelco's 80" Hot Strip Mill at Lake Erie will include the first North American installation of a new energy recovery system in the slab reheating furnace. The slabs will be supported in the furnace by hollow "skids" which will generate steam as they are internally cooled. The steam will be piped to the plant steam supply, thus recovering energy which would otherwise have been wasted.

Stelco's Technical Services and Property Development Department has the responsibility for marketing technical developments that are patentable and have commercial application. One such development, the coilbox technology, is generating increasing interest around the world. In addition to Stelco's own unit, various steel companies in Germany, Sweden and Australia are now operating coilboxes on their hot strip mills. A further unit will be commissioned in Canada in early 1982 and three major U. S. steel companies, who evaluated the technology during 1981, are expected to place orders for the equipment in 1982. The sale of licences for this technology has generated significant income for the Corporation and is expected to continue to generate income during the life of the basic patents.

Dofasco

Dofasco's productivity and profitability have been enhanced through innovation and the use of the best available technology throughout their operations. An ongoing program to improve the yields from the No. 1 Steelmaking Shop has provided significant productivity increases through the introduction of improvements in the quality of raw materials, operating practices and basic oxygen furnace equipment.

The performance of the cold mills has also been upgraded through the installation of Dofasco-designed test equipment on roll grinders. This new equipment has drawn considerable interest from other steel plants. Dofasco has sold rights to use the technology to companies in the U. S. and Europe.

The research and production departments have been working together to re-design the batch annealing equipment. The modified equipment now being texted is expected to save energy and permit shorter process cycle times. The resulting capacity increase could postpone the need to purchase additional batch annealing facilities.

After extensive testing and development, Dofasco has introduced a paintable galvanized steel named "Ultracoat". This product is now being used in several automotive components and has been elected by two North American automakers for building prototype vehicles with enhanced corrosion resistance.

The Company's transportation products development group has continued to emphasize the development of undercarriages or "trucks" for passenger rail vehicles. Over the years, this team, which also provides field service and customer support for trucks built by Dofasco, has produced a number of innovative designs for specific applications.

Dofasco's product development engineers are investigating the efficient use of sheet steel in building components such as cold formed I-beams, as well as thermal and load bearing steel studs.

Burlington Steel

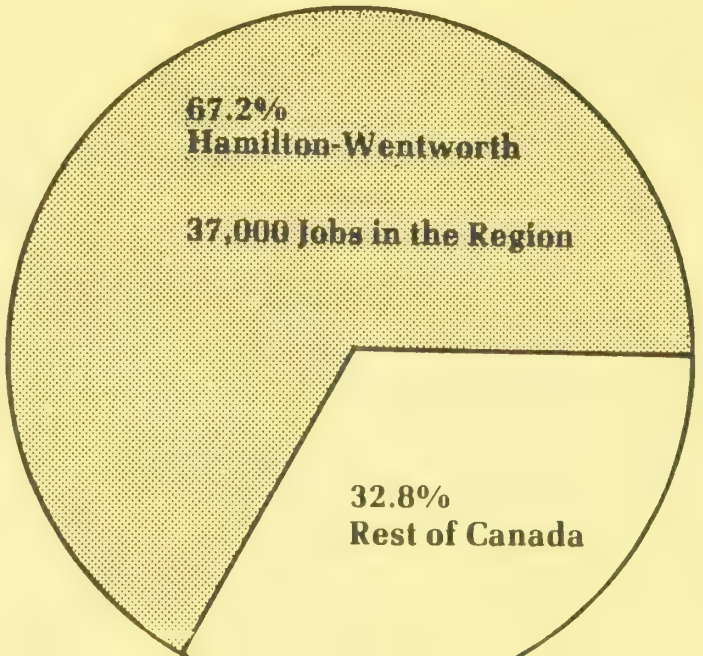
Major capital project activity at Burlington Steel included the installation of water-cooled panels on its 60-ton melt furnace to eliminate the highly-expendable refractory sidewalls normally used; the replacement of an undersized and unreliable track/truck scale with a modern unit of 300-ton capacity; and the purchase of 30-foot annealing furnace, complete with bar straightener and non-destructive testing facility to support the processing of high quality steels.

5

Economic Impact

Integrated Iron & Steel Firms Employment

Hamilton vs. Rest of Canada 1978



5. THE IMPACT OF THE STEEL INDUSTRY ON HAMILTON-WENTWORTH

It is impossible to over emphasize the importance of the steel industry to Hamilton-Wentworth in particular, and to the larger metropolitan area which includes, in addition to the Region of Hamilton-Wentworth, the City of Burlington and the Town of Grimsby. Measured by direct employment, the steel industry employs close to 30,000 persons. This represents 39% of the manufacturing employment and 13% of the total metropolitan employment. Measured by capital expenditures, the steel industry accounts for the bulk of capital expenditures in manufacturing which have been traditionally high in the Hamilton metropolitan area. The 1981 estimate for capital expenditures is $1,166.9 million, an amount which compares well with the much larger metropolitan area of Montreal. In addition to the direct employment and capital expenditures, the area benefits from the amount of services and products purchased by the steel firms, the purchasing power provided by the relatively high wages in the steel industries, and from the multitude of firms in the steel fabricating, machinery and transportation equipment industries which make abundant use of the local steel supply.

5.1 Backward and Forward Linkages

Backward Linkages

Backward linkages are comprised of the sum of all purchases by the steel companies. These purchases can be broadly classified as follows:

- Raw materials;
- Equipment and material; and,
- Services.

Raw materials are mainly comprised of iron ore, coal, scrap iron and limestone. The sources for iron ore, coal and limestone are located outside the boundaries of the Hamilton metropolitan area and therefore, do not constitute significant backward linkages. Scrap iron is provided by Hamilton firms. Several scrap yards in the area engage in the provision of scrap iron and the related products such as parts and other waste material.

Name	Number of Employees
A. & F. Auto Parts Ltd.	8
Brymont Trading Co. Ltd.	2
Poolar Steel Ltd.	2
Usarco Limited	321
Waxman	160
Intermetco	209

Backward linkages originating in the steel industries can be further demonstrated through the input-output tables. The following is a list of the major material inputs that the steel industry uses in its production process.

Industry	Million Dollars (1977)
Iron ore and concentrate	348.0
Other metal ores and concentrate	16.0
Coal	423.0
Natural gas	101.6
Lime	17.0
Iron and steel products	243.0
Scrap iron	81.0
Nickel products	18.0
Other non-ferrous metal products	37.0
Metal fabricated products	55.0
Industrial machinery	25.0
Refractories	54.0
Gasoline and fuel oil	35.0
Oxygen	10.0
Repair construction	47.0
Pipeline transportation	21.0
Coke	17.0
Electric power	93.0
Other utilities	22.0

Source: Statistics Canada.

Forward Linkages

Forward linkages describe the use of iron and steel products by other industries. According to the 1978 input-output tables, the main users were:

Industry	Million Dollars (1978)
Metal Mines	62.9
Mineral fuels	27.8
Services incidental to mining	77.4
Furniture	62.0
Primary metal industries	713.8
Metal fabricating	1,772.0
Machinery	455.0
Transportation equipment	933.0
Electrical products	169.8
Construction	986.6

Source: Statistics Canada.

The metal fabricating, machinery, transportation equipment and electrical products sectors have a solid presence in Hamilton-Wentworth. Some of the major firms in these sectors are:

Robertson Building Systems	-	Metal Fabricating
Frost Steel & Wire Co. Ltd.	-	" "
Harris Steel Group Inc.	-	" "
American Can Canada Inc.	-	" "
Bridge and Tank Canada	-	" "
Rheem Canada Inc.	-	" "
International Harvester Canada	-	Machinery
O. & K. (Orenstein & Koppel)	-	"
Otis Elevator Company	-	"
Secord Manufacturing Limited	-	"
Stanley Works Ltd.	-	"

National Steel Car Ltd.	-	Transportation Equipment
Wabco Limited	-	" "
Westinghouse Canada Inc.	-	Electrical Products
Inglis Limited	-	" "
Canadian Appliance Mfg. Co.	-	" "

Source: Hamilton-Wentworth Economic Development Department.
See Appendix II - Directory of Local Steel and Steel-Related Industries.

5.2 Incomes

The steel industries' contributions to the local economy is further demonstrated by their expenditures on wages and salaries. Wages and salaries in the steel industry are high relative to the average earnings, for all economic sectors.

TABLE 6

AVERAGE WEEKLEY EARNINGS
THE STEEL INDUSTRY AND ALL INDUSTRIES
ONTARIO 1976-1981

	Steel Industry	Industrial Composite
1976	303.59	228.72
1977	328.25	249.46
1978	358.01	264.04
1979	392.22	285.57
1980	421.22	311.45
1981	479.20	347.92

Source: Statistics Canada.

The high incomes create substantial demand for local services and goods, thus providing for additional jobs. (For a more detailed description, see Appendix III.)

The steel industries are responsible to a large extent for the high average weekly earnings in Metropolitan Hamilton. However, the wage rates of other industries are similar to the prevailing wages in the corresponding industries in Ontario.

TABLE 7

AVERAGE WEEKLY EARNINGS
METROPOLITAN HAMILTON AND ONTARIO 1976-1981

	Metropolitan Hamilton	Ontario
1976	237.95	228.72
1977	257.83	249.46
1978	276.05	264.04
1979	300.97	285.57
1980	323.98	311.45
1981	357.07	347.92

Source: Statistics Canada.

One of the results of the high incomes in the area is that personal disposable income per capita is 14% above the Canadian average. The substantial buying power has, among other things, resulted in the recent completion of one of Canada's largest shopping centres. Totalling about one million square feet of retail space, the Lime Ridge Mall on Hamilton Mountain opened in August, 1981.

6

The Future

Hamilton Remains the Steel Capital of Canada

6. THE STEEL INDUSTRY IN THE FUTURE

Currently, the Canadian steel industry is suffering from the recession that has spread from the automotive, construction and resource sectors into a wide spectrum of economic activities. The steel industries did not escape the consequences of the current downturn in economic activity. However, the inherent strengths of the Canadian steel industry should make themselves apparent with the expected upturn of the economy in 1983. The three steel firms in the Region have been building for growth and should be able to reap the benefits of the expected change in business conditions.

The future performance of the steel firms will be influenced by the following factors:

- Total economic activity;
- Price competitiveness;
- Imports;
- Exports; and,
- Additional capacity.

6.1 Total Economic Activity

Economic activity in Canada is dependent to a large extent on developments in the U.S.A. economic performance. Also, Canadian interest rates follow closely the changes in interest rates in the U.S.A. High interest rates have slowed down the U.S.A. economy. The slow U.S.A. economy plus the high interest rates policy in Canada have brought about a dramatic slowdown in Canadian economic activity. Judging from past experience, it is evident that the necessary conditions for a return to the demand levels of previous times are heavily dependent on developments in the U.S.A.'s economy and interest rates. The U. S. economy is forecasted to start growing again toward the end of 1982 and the beginning of 1983. The Canadian economy is expected to follow with an estimated time lag of four to six months. Based on this forecast, steel demand will start picking up around the second quarter of 1983.

6.2 Price Competitiveness

The Canadian steel industry is very price competitive in the Canadian market and the U. S. Great Lakes area. This is the direct result of the efficient Canadian plants and the lower exchange rate.

TABLE 8

SELECTED WORLD STEEL PRICES
(DECEMBER, 1981)
($U.S. PER TONNE - F.O.B. MILL)

	Hot Rolled Coil	Cold Rolled Sheet	Plate	Structural Sections
1. U. S. Producer List	$471	$543	$527	$505
2. Canada	386	466	402	412
3. Japan (Dealer Price)	360	445	358	344
4. Europe (EEC)	330	403	347	351

Exchange Rates: D.M. - 2.25; F.Fr. - 5.70; Yen - 217.9; Cdn. $ - $1.19

Sources: CRU Metal Monitor, American Metal Market, Dofasco

The prices shown are before freight and duty which, on average, run about $80.00 to $85.00 to the Canadian market. The addition of these extra charges renders Japanese and European steel uncompetitive in most Canadian markets. European steel prices are low due to widespread subsidization by European governments. This fact is well known and both the Canadian and U.S.A. governments have mechanisms to deal with dumping of cheap subsidized European steel.

6.3 Imports

Traditionally, imports have been very sensitive to local economic conditions. In times of growth, imports increased dramatically and in times of economic slowdown, they decreased. The main reason for the increase in imports during times of strong economic growth was the lack of sufficient Canadian capacity. Recent additions to capacity by the Canadian steel industry created a somewhat different situation now. One of the challenges to the Canadian steel industry in the future will be its ability to use its new capacity to displace many of the imports. Based on the good performance of the steel firms and on their competitive prices, we believe that they will succeed in gaining local market share from the imports. They might be further aided in this task by the declining value of the Canadian dollar.

6.4 Exports

Steel exports (mainly to the U.S.A.) play an increasingly important role in helping to maintain capacity utilization of the steel firms. Canadian steel industry will have to increase its reliance on export markets. Production capacity has recently expanded to the point where it greatly surpasses Canadian consumption. However, export expansion will not be easy, especially in times of economic slowdown. Excess capacity in the world makes the competition in export markets difficult. Also, under these circumstances, prices obtained tend to bring down the overall profit of the exporting firms. Canada's main hope for increased exports is the U.S.A. market, where proximity and already-existing substantial market penetration make the likelihood of success much larger than in other parts of the world. However, it should be noted that the U. S. is seeking to limit the entry of foreign steel products into its market and import duties and other arrangements are currently being practiced. Canadian exports to the U.S.A. depend to a large extent on future developments regarding import policy in the U.S.A. In the event that Canadian exports are given free entry into the American market, the Canadian steel industries might benefit from the import restrictions imposed on other exporting countries.

6.5 Additions to Production Capacity - Hamilton-Wentworth Firms

All of the three steel producers in the area are involved in additions to production facilities. Each firm has chosen a somewhat different expansion path as described below.

- Stelco

  Stelco's major expansion thrust is the continuing construction of the Lake Erie Works. On the shores of Lake Erie, opposite Erie, Pennyslvania, more than six thousand acres are committed to the construction of one of the most advanced and efficient steelmaking operations in the world. Production started in late May, 1980. With the addition of coke ovens and the future completion of an 80" Hot Strip Mill, the Lake Erie Works will constitute a fully-integrated mill, able to produce raw steel and turn it into flat rolled products for sale. By this new facility, Stelco is adding 1.3 million tons of new steelmaking capacity.

- Dofasco

  Dofasco's major expansion project is the new Hot Strip Mill. Start-up of the $425 million mill is expected in mid 1983. It will have an initial capacity of 1.2 million ingot tons and will be capable of future expansion in stages to 4.5 million ingot tons. Another addition was a new galvanizing line which increased Dofasco's zinc coating capacity by 35% to 840,000 tons per year.

- Slater Steel

  Slater Steel has chosen the route of acquisition as a means for expansion. They acquired the assets of the Stainless Steels Division of Joslyn Mfg. and Supply Co. of Chicago. This acquisition compliments their long-range objective to be an effective low cost producer of specialty bar products. The Joslyn operation will enable Slater Steel to continue with the supply of stainless steels and will add a new capacity for the manufacture of large bar sizes and billets.

APPENDIX I

TECHNOLOGY AND PATENTS

Technology Area	Year	Company	Technology	Comment
Ironmaking	1979	Stelco	High temperature stoves for blast furnace wind.	Lake Erie blast furnace. Imported technology from Netherlands.
Ironmaking	1979	Stelco	Trough and runner hoods blast furnace casthouse.	Lake Erie blast furnace. Imported technology (Japan).
Ironmaking	1976	Stelco	Coke oven shed.	Imported technology. (U.S.A.)
Ironmaking	1974	Dofasco	Desulphurization of hot metal.	Imported from West Germany.
Ironmaking	1973	Stelco	Evaporative stoves for blast furnaces.	Imported technology from U.S.S.R.
Ironmaking	1972	Dofasco	Injection of water/oil emulsions into blast furnaces.	Imported technology from West Germany.
Ironmaking	1972	Stelco Dofasco	Phosam process for removal of ammonia from coke oven gas.	Imported technology from U.S.A.
Ironmaking	1964	Stelco	SL/RN process.	Coal-based reduction process for producing iron pellets. Technology exported to New Zealand, Brazil, South Africa.
Steelmaking	1978	Stelco	Water-cooled panels for electric arc steelmaking.	Imported from Japan.

Technology Area	Year	Company	Technology	Comment
Steelmaking	1978	Stelco	Steel desulphurization (T-N process)	Imported from Germany.
Steelmaking	1975	Dofasco	Sub-lance system for BOF control.	Imported from Japan.
Steelmaking	1974	Stelco	OG process for BOF steel-making.	Imported from Japan.
Steelmaking	1971	Stelco	PAKS process (pouring aluminum kiln steel)	Pioneered in Canada.
Steelmaking	1966	Stelco	Contimelt process (continuous charging of pellets into electric arc furnace).	Pioneered in Canada.
Steelmaking	1954	Dofasco	BOF steelmaking.	Pioneered in North America. Imported from Austria.
Casting	1979	Stelco	Slab caster.	Lake Erie caster. Imported technology from Germany.
Casting	1978	Burlington	Automatic mould level control.	Imported from U.S.A.
Casting	1974	Burlington	Shrouding - continuous casting.	Pollard shroud (imported from U.S.A.) Pioneered in Canada.
Rolling	1975	Stelco	Coilbox for strip rolling.	Exported to Australia.

Technology Area	Year	Company	Technology	Comment
Rolling	1967	Burlington	Walking beam furnace.	Pioneered walking beam furnace for billets in Canada.
Rolling	1965	Dofascl	Steam wiping - galvanized.	Imported from U.S.A.
Rolling	1960	Stelco	Stelmor process for rod manufacture.	Exported world-wide. Over 100 lines in operation.
Rolling	1960	Dofasco	Continuous strip galvanizing wiping apparatus.	Imported from U.S.A.
Rolling	1959	Dofasco	Open coil annealing.	Imported from U.S.A.
Finishing operations	1976	Dofasco	Steel basement construction.	Developed by Dofasco.
Finishing operations	1973	Dofasco	Tunnel furnace for production of grain-oriented steel.	Imported from U.S.A.
Products	1976	Dofasco	Zincrometal for coating steel.	Technology imported from U.S.A.
Products	1972	Dofasco	Passivation treatment for galvanized steel.	Improvements made by Dofasco. Exported to New Zealand.
Products	1970	Dofasco	Tin-free steel.	Pioneered product in Canada. Imported from Japan.
Products	1965	Dofasco	Silicon structural steel.	Imported from U.S.A.

Technology Area	Year	Company	Technology	Comment
Products	1954	Stelco	Ardox nail.	Pioneered and commercialized in Canada.
Analysis, testing instruments	1976	Stelco	Ultrasonic plate tester.	Pioneered and commercialized in Canada.
Analysis, testing instruments	1976	Dofasco	Eddy current testing of rolls.	Developed and commercialized by Dofasco. Exported to U.S.A.
Analysis, testing instruments	1964	Dofasco	Covering device and method of visually scanning a continuous flow of material.	
Analysis, testing instruments	1963	Dofasco	Load cell for mills.	Developed by Dofasco. Exported.
Analysis, testing instruments	1962	Stelco	"Thermocarb" carbon determinator.	Pioneered and commercialized in Canada.
Analysis, testing instruments	1962	Dofasco	Bomb thermocouple for BOF	Developed by Dofasco.

PATENTS

Company	Year	Patent No.	Title
Dofasco	1978	Can 1031131	Steel basement construction.
		Can 1031132	Steel basement construction.
		Can 1031133	Steel basement construction
	1977	Can 1009549	Production of chromium coversion coating (process).
		Can 1013032	Eddy current testing of rolls.
		Can 1014321	Prefabricated roofing system.
		Can 1014713	Prefabricated structures for use with electrical wiring.
		Can 1018722	Means of locating floor decks and walls.
	1976	Can 990501	Apparatus for production of chromium conversion coatings.
		Can 999715	Structural column member and process.
	1975	Can 967035	3 "S" columns.
		Can 974136	3 "S" columns.
	1972	Can 890180	Steel floors and gondola cars.
	1971	Can 862421	Measurement device for steelmaking furnaces (cat bomb.)
Stelco	1978	Can 1023948	Mechanical mixer for desulphurizing steel.
		Can 1029582	Coilbox.
		Can 1033159	Template for rod mill.
	1977	Can 1005975	Asbestos grippers.
		Can 1006403	Passivation of hot dip galvanized strip.
		Can 1010270	Self-drilling screw.
		Can 1011140	Universal screw.
		Can 1011998	Anti-corrosive insert.
		Can 1012456	Paraffin scraper and rod centralizer.
		Can 1014383	Floor nail.
		Can 1014590	Electrode seals.
		Can 1017173	Coilbox.
		Can 1021868	Ultrasonic plate inspection system.

Company	Year	Patent No.	Title
Stelco	1976	Can 986977	Electroplating metal with cadmium or zing and then copper, nickel and chromium.
		Can 1001749	Ultrasonic plate inspection system.
	1975	Can 960716	Drive system for strip material.
		Can 977906	Method of manufacturing fasteners.
	1974	Can 940869	Applying contrasting coatings to a workpiece.
		Can 950243	Rolling hot metal workpieces.
		Can 950244	Coilbox.
		Can 956917	Scrap coil transfer in continuous strip processing line.
	1973	Can 919257	Producing spiral weld-pipe.
		Can 921676	Rapid stripping for cast steel ingots.
		Can 923457	Axial thrust spinning head for rotating dies.
		Can 923770	Coated steel product.
	1982	Can 901774	Pouring kiln steels.
		Can 912088	Continuous charging of an electric-arc steel-making furnace.
		Can 913457	Wringing excess liquid from steel strip.
		Can 916032	Metal coating process.
	1971	Can 887953	Hot strip mill transfer bar retarded cooling.
	1970	Can 833522	Electro-chemical passivation of tinplate.
		Can 843395	Preparing steel for cold working.
		Can 844589	Selective galvanizing of steel strip.
		Can 845077	Wiping coated strips.
		Can 847454	Controlled slag flow in an electric-arc furnace.
		Can 847801	Continuous phosphorus removal in electric-arc steelmaking.

DIRECTORY OF LOCAL STEEL AND STEEL-RELATED INDUSTRIES

2910 Iron and Steel Mills

Burlington Steel,
319 Sherman Avenue North,
HAMILTON, Ontario, Canada L8L 6N2.
B. Hamilton (416)549-4774
Est. 1910 M - 700 F - 75
Product: Reinforcing steel, special shapes and grinding balls

Dofasco Inc.,
1330 Burlington Street East,
HAMILTON, Ontario, Canada L8N 3J5.
Alan Goddard (416)544-3761
Est. 1912 M - 10500 F - 1200
Product: Hot and cold rolled steel

Nelson Steel Company Limited,
199 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2L9.
Donald Budge (416)662-1404
Est. 1973 M - 80 F - 3
Product: Steel coil processing

Newman Steel Ltd.,
12 Teal Avenue,
STONEY CREEK, Ontario, Canada L8H 7J5.
Mr. C. Smyth (416)561-7811
Est. 1957 M - 180 F - 17
Product: Steel fabricating.

Samuel Son & Company Limited,
512 Seaman Avenue,
STONEY CREEK, Ontario, Canada L8E 2R2.
T. Palarico (416)662-6022
Est. 1855 M - 40 F - 2
Product: Steel fabricating.

Stanley Precision Space Inc.,
65 Imperial Street,
HAMILTON, Ontario, Canada L8L 7X9.
J. D. Batson (416)544-2803
Est. 1916 M - 240 F - 30
Product: Hot and cold rolled strip steel, strap and air tools

Stanton Pipes Limited,
600 Kenilworth Avenue North,
HAMILTON, Ontario, Canada L8H 4T7.
N. Preece (416)547-3251
Est. 1961 M - 20 F - 30
Product: Spun cast iron pipe.

Stelco Inc.,
100 King Street West,
HAMILTON, Ontario, Canada L8N 3T1.
A. Oliver (416)528-2511
Est. 1910 M - 17170 F - 1050
Product: Hot and cold rolled steel, plates.

Taylor Steel Inc.,
477 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2N1.
M. Taylor (416)662-4925
Est. 1968 M - 130 F - 15
Product: Sheet steel.

Union Drawn Steel Company,
1350 Burlington Street East,
HAMILTON, Ontario, Canada L8N 3A2.
R. Hawkins (416)547-4480
Est. 1905 M - 134 F - 11
Product: Cold finished steel.

Usarco Limited,
363 Wellington Street North,
HAMILTON, Ontario, Canada L8L 5B2.
F. Levy (416)528-0111
Est. 1930 M - 300 F - 21
Product: Non-ferrous ingots, scrap and industrial structural steel

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3040 Metal Stamping, Pressing and Coating

Baycoat Ltd.,
244 Lanark Street,
HAMILTON, Ontario, Canada L8N 3K7.
G.R.K. Lye (416)561-0965
Est. 1964 M - 244 F - 27
Product: Pre-painted coil steel

Eaton Yale Ltd., (Fasteners),
686 Parkdale Avenue North,
HAMILTON, Ontario, Canada L8N 3K1.
(416)549-4661
Est. 1946 M - 68 F - 12
Product: Industrial fasteners and metal stampings.

Universal Handling Equipment,
100 Burland Crescent,
HAMILTON, Ontario, Canada L8H 7N3.
M. Goldblatt (416)547-0161
Est. 1961 M - 62 F - 3
Product: Disposal containers, machines.

2920 Steel Pipe and Tube Mills

I.T.T. Grinnel Sales Limited,
470 Seaman Street,
STONEY CREEK, Ontario, Canada L8E 2V9.
R. Penna (416)561-7711
Est. 1974 M - 28 F - 8
Product: Steel pipe and tube mill.

Stanton Pipes Limited,
600 Kenilworth Avenue North,
HAMILTON, Ontario, Canada L8H 4T7.
N. Preece (416)547-3251
Est. 1961 M - 250 F - 30
Product: Spun cast iron pipe

Taylor Forge Canada,
1675 Burlington Street East, Box 511,
HAMILTON, Ontario, Canada. L8N 3H8.
J. Huitt (416)549-3051
Est. 1963 M - 90 F - 15
Product: Mechanical pipe and tubing, steel

2980 Metal Rolling, Casting and Extruding

Hamilton Foundry Co. Limited,
33 Clinton Street,
HAMILTON, Ontario, Canada L8L 3J7.
John Tiffany (416)544-0740
Est. 1908 M - 49 F - 2
Product: Gray iron castings, industrial castings

McCoy Foundry,
R. R. #1,
TROY, Ontario, Canada L0R 2B0.
A. McCoy (416)647-3411
Est. 1935 M - 70 F - 4
Product: Gray iron castings

3020 Fabricated Structural Metal

Barton Metal Work Limited,
733 Barton Street East,
STONEY CREEK, Ontario, Canada L8G 3X5.
A. Dicristofaro (416)642-4161
Est. 1975 M - 35 F - 2
Product: Fabricated structural metal

Drummond McCall Inc.,
410 Nash Road North,
HAMILTON, Ontario, Canada L8H 7J1.
Mr. D. Mitchell (416)523-8101
Est. 1957 M - 90 F - 3
Product: Steel plates, structural bars

Robertson Building Systems,
411 Parkdale Avenue North,
HAMILTON, Ontario, Canada L8H 5Y4.
V. Sucharda (416)544-2831
Est. 1863 M - 420 F - 50
Product: Prefabricated steel buildings

Steel Fabricating and Welding,
340 Hatt Street,
DUNDAS, Ontario, Canada L9H 2J1.
D. J. Stelliga (416)628-6351
Est. 1933 M - 40 F - 2
Product: Steel tanks.

3050 Wire and Wire Products

Ennis-Paikin Steel Limited,
70 Frid Street,
HAMILTON, Ontario, Canada L8N 3P6.
B. Ennis (416)527-9291
Est. 1970 M - 56 F - 12
Product: Fabricated reinforcing steel wire mesh

Frost Steel and Wire Company Ltd.,
100 King Street West,
HAMILTON, Ontario, Canada L8N 3T1.
J. P. Richardson (416)544-5701
Est. 1916 M - 299 F - 7
Product: Chain link fence

Greening Donald Company Ltd.,
55 Queen Street North,
HAMILTON, Ontario, Canada L8R 2V2.
T. Carney (416)528-5971
Est. 1970 M - 570 F - 139
Product: Woven wire cloth, metals and meshes.

Harris Steel Group Inc.,
318 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2M2.
H. Marcaccio (416)561-5611
Est. 1965 M - 205 F - 35
Product: Reinforced steel and wire mesh

3080 Machine Shops

Barlow Tool & Machine Limited,
238 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2L8.
W. Barlow (416)561-2440
Est. 1932 M - 43 F - 2
Product: Machine shop.

Carpenter Die Casting,
540 Queen Elizabeth Way,
STONEY CREEK, Ontario, Canada L8E 2R3.
N. Carpenter (416)664-4474
Est. 1948 M - 27 F - 9
Product: Machine Shop

Do-Tan Manufacturing Ltd.,
15 Hatt Street,
DUNDAS, Ontario, Canada L9H 2G1.
Mr. R. G. Doel (416)628-2241
Est. 1916 M - 60 F - 8
Product: Design and manufacture special purpose machines.

Embree Industries Limited,
151 Birge Street,
HAMILTON, Ontario, Canada L8L 7V4.
H. Embree (416)529-7187
Est. 1913 M - 38 F - 12
Product: Machine shop.

Hayes Dana Nasco Plant,
439 Highway No. 8,
STONEY CREEK, Ontario, Canada L8G 1G5.
D. Welsh (416)662-8321
Est. 1964 M - 150 F - 30
Product: Rebuild automotive parts.

Kot Tool and Die Division,
359 Millen Road,
STONEY CREEK, Ontario, Canada L8E 2H4.
N. Kot (416)561-9831
Est. 1968 M - 45 F - 3
Product: Machine shop

Neo Industries Limited,
76 Mead Avenue,
HAMILTON, Ontario, Canada L8H 7K6.
J. Jones (416)549-3514
Est. 1974 M - 145 F - 35
Product: Specialized machining.

Regional Die Casting Limited,
47 Idlewilde Avenue,
STONEY CREEK, Ontario, Canada.
A. Corso (416)561-6943
Est. 1974 M - 88 F - 7
Product: Machine shop.

Wentworth Mould and Die Co.,
99 Burton Street,
HAMILTON, Ontario, Canada L8L 7T5.
F. Chalkley (416)528-9831
Est. 1955 M - 80 F - 4
Product: Moulds, dies, jigs, fixtures

3090 Metal Fabricating

American Can Canada Inc.,
391 Victoria Avenue North,
HAMILTON, Ontario, Canada L8L 5G7.
L. Baker (416)528-3471
Est. 1981 M - 664 F - 83
Product: Metal container components.

Bridge and Tank Canada,
390 Gage Avenue North,
HAMILTON, Ontario, Canada L8N 3G8.
J. Bracewell (416)547-2381
Est. 1954 M - 126 F - 7
Product: Fabricated structural steel

Brown Boggs Foundry and Machinery,
275 Sherman Avenue North,
HAMILTON, Ontario, Canada L8L 7Y2.
J. Brown (416)549-6594
Est. 1899 M - 120 F - 9
Product: Machine tools for fabrication.

Canron Inc.,
175 Stuart Street West,
HAMILTON, Ontario, Canada L8R 2W5.
R. Lacost (416)527-9171
Est. 1948 M - 148 F - 2
Product: Metal fabricating.

CDN Ferro Hot Metals Spec.,
345 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2M6.
C. R. Mitchell (416)662-8381
Est. 1968 M - 24 F - 1
Product: Metal fabricating.

Chubb Mosler Security System,
92 John Street North,
HAMILTON, Ontario, Canada L8R 1H7.
M. Vanderweil (416)528-8971
Est. 1971 M - 9 F - 6
Product: Security systems, safes.

Frost Metal Products,
170 Chatham Street,
HAMILTON, Ontario, Canada L8P 2B6.
W. Biggar (416)527-2908
Est. 1962 M - 23 F - 21
Product: Sanitation equipment

GSW Building Products,
28o Birch Avenue,
HAMILTON, Ontario, Canada L8L 7X6.
G. Woodrow (416)529-8191
Est. 1968 M - 121 F - 48
Product: Galvanized wares, stove pipes

Greif Containers Inc.,
370 Millen Road,
STONEY CREEK, Ontario, Canada L8E 2H5.
C. Crowe (416)664-4433
Est. 1957 M - 52 F - 3
Product: Steel drums manufacture

Kent Steel Products,
1835 Burlington Street East,
HAMILTON, Ontario, Canada L8H 3L5.
S. Sobol (416)547-1931
Est. 1941 M - 100 F - 15
Product: Metal fabricating.

Rheem Canada Inc.,
128 Barton Street West,
HAMILTON, Ontario, Canada L8R 2H2.
G. C. Norman (416)527-9194
Est. 1947 M - 225 F - 10
Product: Steel shipping containers, water heaters

Russel Steel,
519 Parkdale Avenue North,
HAMILTON, Ontario, Canada L8H 5Y6.
Garnet Morton (416)547-7064
Est. 1967 M - 70 F - 5
Product: Steel service centre.

Shaw Pipe Protection Limited,
385 Nebo Road,
HANNON, Ontario, Canada L0R 1P0.
K. Harris (416)385-3183
Est. 1957 M - 34 F -
Product: Pipe Coating.

3110 Agricultural Implements

International Harvester,
208 Hillyard Street,
HAMILTON, Ontario, Canada L8N 3S5.
C. J. Munro (416)549-5231
Est. 1902 M - 1854 F - 91
Product: Farm machinery

3150 Machinery and Equipment

J. W. Anderson Company Limited,
44 Head Street,
DUNDAS, Ontario, Canada L9H 3H3.
J. Anderson (416)627-9233
Est. 1952 M - 24 F - 7
Product: Water conditioning equipment for industry.

Canadian Bearings Co.,
495 Woodward Avenue,
HAMILTON, Ontario, Canada L8H 6N6.
S. Grochowina (416)547-2351
Est. 1951 M - 13 F - 2
Product: Industrial bearings.

Canadian General Electric,
505 Woodward Avenue,
HAMILTON, Ontario, Canada L8H 6N6.
T. Graham (416)549-5281
Est. 1892 M - 31 F - 4
Product: Apparatus and heavy machinery sales.

Crane Packing Co. Ltd.,
423 Green Road,
STONEY CREEK, Ontario, Canada L8H 7L3.
W. Hewton (416)662-6191
Est. 1972 M - 91 F - 68
Product: Hydraulic packing.

Edson Packaging Machinery,
1308 Rymal Road East,
HAMILTON, Ontario, Canada L8V 4L5.
J. Sinclair (416)385-3201
Est. 1967 M - 29 F - 4
Product: Automatic and semi-automatic case openers

Ford-Smith Machine Company Ltd.,
675 Idlewilde Avenue,
FRUITLAND, Ontario, Canada L0R 1L0.
V. Lamont (416)643-1273
Est. 1918 M - 58 F - 3
Product: Automotive hoists, fifth wheels

Gudgeon Cabinets Limited,
345 Dosco Drive,
STONEY CREEK, Ontario, Canada L8E 2N6.
H. Gudgeon (416)662-2292
Est. 1967 M - 8 F - 1
Product: Elevators, cabinet manufacturing.

Hammant Car and Engineering,
29 Dunbar Avenue,
HAMILTON, Ontario, Canada L8H 3E3.
W. Hammond (416)547-2391
Est. 1906 M - 50 F - 2
Product: Manufacturing of material handling equipment, dumpers and buggers

Industrial Welding Products Company,
455 Cumberland Avenue,
HAMILTON, Ontario, Canada L8M 2A8.
Mr. G. Morrow (416)547-4722
Est. 1971 M - 36 F - 4
Product: Welding fluxes

Jervis B. Webb Company of Canada,
1647 Burlington Street East,
HAMILTON, Ontario, Canada L8H 7M5.
R. Rumsey (416)547-0411
Est. 1948 M - 132 F - 12
Product: Cranes and conveyor systems

Loopco Canada Limited,
7241 Arvin Avenue,
STONEY CREEK, Ontario, Canada L8E 2L9.
W. Crosbie (416)561-9711
Est. 1972 M - 22 F - 3
Product: Steel handling equipment.

McCabe Bros. Steel Inc.,
463 Seaman Street,
STONEY CREEK, Ontario, Canada L8E 2R2.
N. McCabe (416)662-1161
Est. 1969 M - 39 F - 2
Product: Crane beams, steel fabricating

O & K Orenstein & Koppel,
21 Hatt Street,
DUNDAS, Ontario, Canada L9H 5P9.
Mr. H. Frost (416)628-2233
Est. 1863 M - 300 F - 50
Product: Construction equipment and special machinery.

Orlick Industries Limited,
35 Glen Road,
HAMILTON, Ontario, Canada L8S 4L3.
D. Braley (416)528-0171
Est. 1954 M - 64 F - 4
Product: Finishing machine and die

Otis Elevator Company,
414 Victoria Avenue North,
HAMILTON, Ontario, Canada L8N 3M1.
R. G. Hunter (416)527-9271
Est. 1902 M - 773 F - 161
Product: Elevators, escalators.

Secord Manufacturing Limited,
20 Teal Avenue,
STONEY CREEK, Ontario, Canada L8H 7K6.
J. Secord (416)560-3611
Est. 1o58 M - 130 F - 10
Product: Cranes and overhead doors

Stanley Works Limited,
65 Imperial Street,
HAMILTON, Ontario, Canada L8L 7X9.
H. D. Goard (416)544-1124
Est. 1914 M - 76 F - 28
Product: Hardware, power tools and hand tools.

L. E. Taylor Associates Ltd.,
555 Parkdale Avenue North,
HAMILTON, Ontario, Canada L8H 5Y9.
L. Taylor (416)547-5164
Est. 1966 M - 17 F - 18
Product: Pipe hangers, riser clamps

3160 Commercial Refrigeration and Air Conditioning Equipment

Canadian Curtis Refrigeration,
340 Leaside Avenue,
STONEY CREEK, Ontario, Canada L8E 2N7.
D. Lloyd (416)662-4984
Est. 1934 M - 19 F - 11
Product: Refrigeration and air conditioning equipment

3230 Motor Vehicles

J. B. Systems Ltd.,
330 Leaside Avenue,
STONEY CREEK, Ontario, Canada L8E 2N7.
T. Bratschitsch (416)662-6231
Est. 1972 M - 20 F - 4
Product: Tank trucks and vacuum pumps

3250 Motor Vehicle Parts and Accessories

Allen Industries Canada,
1 Warrington Street,
HAMILTON, Ontario, Canada L8H 7K6.
V. Showich (416)561-9052
Est. 1966 M - 250 F - 575
Product: Automotive products (interior)

3260 Railroad Rolling Stock

National Steel Car Limited,
P. O. Box 450,
HAMILTON, Ontario, Canada L8N 3J4.
T. Rahilly (416)544-3311
Est. 1919 M - 1500 F - 188
Product: Railway freight cars.

Wabco Limited,
475 Seaman Street,
STONEY CREEK, Ontario, Canada L8E 2R2.
J. R. Pier (416)561-8700
Est. 1971 M - 332 F - 54
Product: Railroad air brakes, industrial products.

3320 Major Appliances (Electric and Non-Electric)

Inglis Limited,
400 Green Road,
STONEY CREEK, Ontario, Canada L8E 2B4.
Mr. S. Edwards (416)664-4466
Est. 1968 M - 690 F - 180
Product: Household appliances.

Canadian Appliance Manufacturing Co.,
175 Longwood Road South,
P. O. Box 2094,
HAMILTON, Ontario, Canada L8N 3Y5.
L. Alrarey (416)528-3431
Est. 1977 M - 650 F - 75
Product: Household appliances.

3360 Electrical Industrial Equipment

El-Met-Parts,
47 Head Street,
DUNDAS, Ontario, Canada L9H 3H6.
J. Papakyriakou (416)628-6366
Est. 1947 M - 108 F - 8
Product: Magnetic cores, electrical steel stampings

Motivation Industrial Equipment,
172-178 South Service Road,
STONEY CREEK, Ontario, Canada L8E 3H6.
J. A. Holdon (416)561-6400
Est. 1966 M - 17 F - 4
Product: Portable floor cranes, lifters

Weld-O-Matic Machines Co. Ltd.,
144 Burland Crescent,
HAMILTON, Ontario, Canada L8H 7L5.
L. Aulenback (416)549-6579
Est. 1943 M - 3 F - 1
Product: Resistance welding machines, pollution control

Westinghouse Canada Inc.,
286 Sanford Avenue North,
HAMILTON, Ontario, Canada L8N 3K2.
F. H. Tyaack (416)528-8811
Est. 1903 M - 2495 F - 657
Product: Turbines, switchgears, electronics.

INPUT-OUTPUT DATA FOR THE STEEL INDUSTRY

The importance of the steel industry can be demonstrated through the simulation of $1 million increase in demand for steel products. This increase filters down the economy resulting in much greater impact than just the original impact reached within the steel industry itself.

1. The impact of $1 million additional demand on the steel and iron industries

Direct Impacts - Domestic

	Category	Dollars	% of Total
1.	Iron Ores and Concentrates	64,925	7.9
2.	Other Metal Ores and Concentrates	3,857	0.5
3.	Coal	19,967	2.4
4.	Crude Mineral Oils	3,231	0.4
5.	Natural Gas	11,871	1.4
6.	Non-Metallic Minerals	2,529	0.3
7.	Miscellaneous Food Products	10	-
8.	Lumber and Timber	608	0.1
9.	Other Wood Fabricated Materials	1,396	0.2
10.	Newsprint and Other Paper Stock	278	-
11.	Paper Products	1	-
12.	Printing and Publishing	7	-
13.	Iron and Steel Products	57,094	7.0
14.	Aluminum Products	1,672	0.2
15.	Copper and Copper Alloy Products	532	0.1
16.	Nickel Products	4,664	0.6
17.	Other Non-Ferrous Metal Products	27,574	3.4
18.	Fabricated Structural Metal Products	1,159	0.1
19.	Other Metal Fabricated Products	19,433	2.4
20.	Other Industrial Machinery	2,250	0.3
21.	Other Electrical Products	35	-
22.	Other Non-Metallic Mineral Products	9,908	1.2
23.	Gasoline and Fuel Oil	8,910	1.1

	Category	Dollars	% of Total
24.	Other Petroleum and Coal Products	1,921	0.2
25.	Industrial Chemicals	3,307	0.4
26.	Other Chemical Products	1,752	0.2
27.	Repair Construction	12,016	1.5
28.	Pipeline Transportation	4,746	0.6
29.	Transportation and Storage	1,322	0.2
30.	Telephone and Telegraph	2,244	0.3
31.	Postal Service	177	-
32.	Electric Power	23,817	2.9
33.	Other Utilities	6,019	0.7
34.	Wholesale Margins	33,503	4.1
35.	Retail Margins	60	-
36.	Other Finance, Insurance, Real Estate	9,008	1.1
37.	Business Services	4,878	0.6
38.	Other Personal and Miscellaneous Services	4,463	0.5
39.	Transportation Margins	41,445	5.1
40.	Operating, Office, Labour and Food	72,858	8.9
41.	Travel, Advertising and Promotion	2,590	0.3
42.	Indirect Taxes	8,544	1.0
43.	Subsidies	- 6,875	- 0.8
44.	Wages and Salaries	241,635	29.5
45.	Supplementary Labour Income	28,358	3.5
46.	Other Surplus	79,247	9.7
	TOTAL	818,946	100.0

2. A measure of the total impact on the Canadian economy is the total increase in production.

Total Impact - Total Domestic Output

	Category	Dollars	% of Total
1.	Grains	2,902	0.1
2.	Live Animals	15,338	0.6
3.	Other Agricultural Products	16,882	0.7
4.	Forestry Products	4,144	9.2
5.	Fish Landings	789	-
6.	Hunting and Trapping Products	21	-
7.	Iron Iroes and Concentrates	69,105	2.7
8.	Other Metal Ores and Concentrates	19,415	0.8
9.	Coal	14,949	0.6
10.	Crude Mineral Oils	27,583	1.1
11.	Natural Gas	19,982	0.8
12.	Non-Metallic Minerals	4,502	0.2
13.	Services Incidental to Mining	8,820	0.3
14.	Meat Products	26,086	1.0
15.	Dairy Products	13,703	0.5
16.	Fish Products	1,217	-
17.	Fruits and Vegetables Preparations	5,826	0.2
18.	Feeds	5,742	0.2
19.	Flour, Wheat, Meal and Other Cereals	1,353	0.1
20.	Breakfast Cereals and Bakery Products	6,919	0.3
21.	Sugar	1,912	0.1
22.	Miscellaneous Food Products	11,699	0.5
23.	Soft Drinks	3,980	0.2
24.	Alcoholic Beverages	5,641	0.2
25.	Tobacco Processed - Unmanufactured	927	-
26.	Cigarettes and Tobacco Manufacturing	3,596	0.1
27.	Tires and Tubes	3,904	0.2

	Category	Dollars	% of Total
28.	Other Rubber Products	1,642	0.1
29.	Plastic Fabricated Products	4,610	0.2
30.	Leather and Leather Products	3,203	0.1
31.	Yarns and Man-Made Fibres	2,431	0.1
32.	Fabrics	4,484	0.2
33.	Other Textile Products	4,972	0.2
34.	Hosiery and Knitted Wear	3,801	0.1
35.	Clothing and Accessories	13,142	0.5
36.	Lumber and Timber	2,761	0.1
37.	Veneer and Plywood	1,054	-
38.	Other Wood-Fabricated Materials	4,427	0.2
39.	Furniture and Fixtures	5,603	0.2
40.	Pulp	470	-
41.	Newspring and Other Paper Stock	7,656	0.3
42.	Paper Products	12,203	0.5
43.	Printing and Publishing	12,253	0.5
44.	Advertising and Print Media	4,921	0.2
45.	Iron and Steel Products	73,890	2.9
46.	Aluminum Products	6,788	0.3
47.	Copper and Copper Alloy Products	2,868	0.1
48.	Nickel Products	5,115	0.2
49.	Other Non-Ferrous Metal Products	31,963	1.3
50.	Boilers, Tanks and Plates	899	-
51.	Fabricated Structural Metal Products	3,043	0.1
52.	Other Metal Fabricated Products	37,458	1.5
53.	Agricultural Machinery	90	-
54.	Other INdustrial Machinery	10,705	0.4
55.	Motor Vehicles	5,261	0.2
56.	Motor Vehicles Parts	3,320	0.1
57.	Other Transport Equipment	2,776	0.1
58.	Appliances and Receivers - Household	4,546	0.2
59.	Other Electrical Products	9,292	0.4
60.	Cement and Concrete Products	1,722	0.1
61.	Other Non-Metallic Mineral Products	14,541	0.6

	Category	Dollars	% of Total
62.	Gasoline and Fuel Oil	44,912	1.8
63.	Other Petroleum and Coal Products	8,062	0.3
64.	Industrial Chemicals	14,201	0.6
65.	Fertilizers	367	-
66.	yharmaceuticals	2,529	0.1
67.	Other Chemical Products	17,143	0.7
68.	Scientific Equipment	1,694	0.1
69.	Other Manufactured Products	6,378	0.3
70.	Repair Construction	40,312	1.6
71.	Pipeline Transportation	10,206	0.4
72.	Transportation and Storage	96,697	3.8
73.	Radio and Television Broadcasting	4,657	0.2
74.	Telephone and Telegraph	21,440	0.8
75.	Postal Services	4,236	0.2
76.	Electric Power	49,476	2.0
77.	Other Utilities	9,971	0.4
78.	Wholesale Margins	90,006	3.5
79.	Retail Margins	72,960	2.9
80.	Imputed Rent/Owner/Occupied Dwellings	58,298	2.3
81.	Other Finance, Insurance Real Estate	130,291	5.1
82.	Business Services	26,432	1.0
83.	Education Services	1,732	0.1
84.	Health Services	6,451	0.3
85.	Amusement and Recreation Services	9,397	0.4
86.	Accommodation and Food Services	46,478	1.8
87.	Other Personal and Miscellaneous Services	61,033	2.4
88.	Transportation Margins	62,510	2.5
89.	Operating, Office, Labour and Food	134,003	5.3
90.	Travel, Advertising and Promotion	31,399	1.2
91.	Wages and Salaries	645,049	25.4
92.	Supplementary Labour Income	60,841	2.4
93.	Net Income, Not Including Business	44,723	1.8
94.	Household Investment Income	121,839	4.8
	TOTAL	2,537,070	100.0

2.1 Gross Domestic Product

The additional demand for steel products serves to increase domestic value added. This is measured by increase in Gross Domestic Product (G.D.P.) increased by close to $1.1 million.

	Industry	Dollars	% of Total
1.	Agriculture	20,123	1.9
2.	Forestry	2,022	0.2
3.	Fishing, Hunting and Trapping	588	0.1
4.	Metal Mines	40,137	3.7
5.	Mineral Fuels	35,063	3.2
6.	Non-Metal Mines and Quarries	2,636	0.2
7.	Services Incidental to Mining	4,265	0.4
8.	Food and Beverage Industries	23,279	2.1
9.	Tobacco Products Industries	1,378	0.1
10.	Rubber and Plastics Products Industries	4,641	0.4
11.	Leather Industries	1,348	0.1
12.	Textile Industries	4,166	0.4
13.	Knitting Mills	1,297	0.1
14.	Clothing Industries	6,203	0.6
15.	Wood Industries	3,477	0.3
16.	Furniture and Fixture Industries	2,332	0.2
17.	Paper and Allied Industries	7,700	0.7
18.	Printing and Publishing	9,400	0.9
19.	Primary Metal Industries	386,225	35.6
20.	Metal Fabricating Industries	18,089	1.7
21.	Machinery Industries	6,261	0.6
22.	Transportation Equipment Industry	5,616	0.5
23.	Electrical Products Industries	7,223	0.7
24.	Non-Metallic Mineral Products Industries	7,095	0.7
25.	Petroleum and Coal Products Industry	4,245	0.4
26.	Chemical and Chemical Products Industry	12,347	1.1
27.	Miscellaneous Manufacturing Industries	3,822	0.4

	Industry	Dollars	% of Total
28.	Construction Industry	20,692	1.9
29.	Transportation and Storage	60,181	5.5
30.	Communication	25,062	2.3
31.	Electric Power, Gas, Other Utilities	47,050	4.3
32.	Wholesale Trade	56,626	5.2
33.	Retail Trade	68,970	6.4
34.	Owner-Occupied Dwellings	32,041	3.0
35.	Other Finance, Insurance and Real Estate	83,127	7.7
36.	Education and Health Services	6,244	0.6
37.	Amusement and Recreation Services	5,657	0.5
38.	Services to Business Management	23,934	2.2
39.	Accommodation and Food Services	24,954	2.3
40.	Other Personal and Miscellaneous Services	8,946	0.8
	TOTAL	1,084,462	100.0

Source: Statistics Canada Special Tabulation.

2.2 Contribution to Employment and Income

(a) Employment

Employment generated by additional demand for iron and steel products is as follows:

For each $1 million of demand:

- o 13.3 additional jobs in the iron and steel industry;
- o 33.6 additional jobs in other industries; and,
- o 46.9 additional jobs in the Canadian economy.

The ratio of total jobs created to direct employment (iron and steel industries employment) is 3.5.

(b) Wages, Salaries and Supplementary Labour Income

New direct labour income amounts to $269,993. Total new labour income comes to $645,049. The ratio of total new labour income to new direct income is 2.7.

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